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AUTHOR Rosner, Mary
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ABSTRACT

A content analysis was conducted of 17 technical writing textbooks published between 1911 and 1938 and of 3 texts published recently to determine if the early texts differ from the more recent ones in the way they define the purposes of technical writing and in their treatment of style and audience. Results showed that both sets of texts define technical writing almost exclusively as writing done by male engineers. The purposes cited for such writing, however, are not so concentrated. In both early and recent texts, technical writing is proposed as a way to advance engineers, to allow them to share their knowledge, to give them writing confidence and practice, and to enable them to write better. However, the early texts present additional purposes that have since disappeared, including that of providing a means of personal and cultural growth. While both sets of texts offer similar abstractions to generalize about technical writing style, the early texts advocate additional qualities, characterized by words such as "interesting," "forceful," and "beauty," that are no longer considered essential. Both sets of books agree in theory to the relationship of audience and style, but neither set identifies specific audiences or considers the possibilities of many different audiences for technical writing. (FL)

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Style and Audience in Technical Writing: Advice from
the Early Texts
Mary Rosner

Discussions of technical writing can always be linked to the rise of science in the eighteenth century and the consequent establishment of the Royal Society to document the experiments and discoveries associated with that rise. And so writers attempted to "make faithful records" ¹ by exacting a mathematically plain style, a style--Sprat tell us--that rejected "all amplification, digressions, and swellings...to return back to the primitive purity and shortness when man delivered so many things [pieces of information] almost in an equal number of words." ² A clear, concise style. In the twentieth century, technical writing books may have replaced the Royal Society as authoritative definers of technical style, and instruction in tech writing may have moved from the RS to the classroom, but the definition is still the same: a plain, well edited style that reflects an accuracy and simplicity appropriate to its subject. We can, of course, go on to wonder about technical writing in its infancy, but I would rather direct us to the infancy of technical writing text-books. For several years as a tech writing teacher, I invoked the stylistic truths of the trade, truths propounded by Houp and Pearsall; Andrews and Blickle; Bruner, Mathes, and Stevenson. At the same time, as a student of rhetoric, I watch the authority of freshman composition texts, those descended from Bain, personified by McCrimmon, fall before the recognition of PROCESS. I began to wonder about the past of our technical writing books and fear for their future: specifically, I wondered, how did early texts define the purposes of technical writing, what did they teach about style, did they connect style and audience, and

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do differences exist between their treatments and more contemporary treatments of these two subjects. To answer these questions, I surveyed the definitions of technical writing, as well as the style and audience sections, of seventeen technical writing textbooks published between 1911 and 1938,³ and compared the results of that survey to the material in these recent popular texts: Reporting Technical Information, Technical Writing: Principles and Forms, and The Technician as Writer.⁴ This paper reports the results of my investigation: We have not changed much.

1. Purposes of a Technical Writing Course

Both the early and contemporary texts define technical writing almost exclusively as writing done by (male) engineers. Beckman's Technical Writing of Farm and Home (published in Ames, Iowa, 1927) is the only one of the early books directed to members of any other discipline--agriculture and home economics. In the 80's, Technical Writing: Principles and Forms seems to be the only book addressed to a wide audience, an audience identified as "students in engineering, the physical and natural sciences, home economics, architecture, and business."⁵ Even though both sets of books--the new and the old--concentrate on a single engineering audience, their purposes are not so concentrated. A number of the early texts, as we could expect, argue that technical writing can advance engineers, that it can allow them to share their knowledge, that it can give them writing confidence and practice, that it can enable them to write better--the same arguments we use today. But many of the authors of these early texts urge additional reasons for the technical writing course, a course that was practical--we learn--but not "utterly Philistine."⁶ It could aim, as one author

says, to give the engineers a "glimpse of the cultural things of life."⁷ Another writer argues that "along with the fundamental virtues of clearness and correctness, the student [could] develop resourcefulness and critical taste. He is constantly reminded of his need for an adequate cultural background, and of the literary values which are inseparably linked with the practical or which lie just beyond."⁸ Finally, the course could fulfill more personal needs:

English is also a means of escape from the monotony of the purely technical.... [It] can offer a student a much more profitable way of resting his mind, wearied by practical studies, than the motion picture or vaudeville.... A knowledge of good books and good magazines may aid the student engineer in laying the foundations for a sound critical judgment which will be of service to him in reaching sane conclusions when in future⁹ leisure hours he turns for recreation to reading.

The source of this personal and cultural growth is reading. It is not surprising, then, that several of these early texts, with chapters on the Engineer's Library and with appendices on Suggested Reading Lists, would condemn the narrowness that seems the trademark of today's engineering student: "The non-reading man is usually an uncultured and uneducated man"--one book tells us. "The merely professional or 'one book' man is a narrow man: worse than that, he is an artificial man, a creature of technicalities and specialities, removed equally from the broad truths of nature and from the healthy influences of human contact."¹⁰ Thus, these early texts connect writing, reading, and thinking not simply as tools of the profession but as means for the growth of the individual. For at least one author, this growth signals astounding results: ethical progress for the human race:

Language is a factor in the evolution of the race and an instrument that works for ethical progress--it is a gift to be cherished as the ladder by which man has climbed down from his bestial origin and by which he may ascend to a loftier destiny, in which, ceasing to stammer in accents

that are but the halting expression of swift thought, he shall unfold his mind in the fullness of speech, and neither withholding what he wants to say nor saying what he wants to withhold, shall be linked to his fellows by a perfect communion of ideas. 11

Courses based on these books could make an engineer not only a writer, but a literate and cultured writer — aims we do not attempt today.

2. Technical Writing Style

Although both sets of books offer very similar abstractions to generalize about technical writing style, the early texts advocate additional qualities which we no longer consider essential. Here, as in the contemporary textbooks, we find technical style characterized in terms that echo the mandates of the Royal Society: it is unadorned and precise; it is simple and direct; concrete and complete. Technical style is clear as well, because it reflects clear thinking. And clear thinking is within the reach of all: "He who would be a clear thinker must practice patience and poise...he must continually wait for the mud in his think-tank to settle." 12 Even when the early books treat specifics of style, these specifics are extraordinarily familiar: paragraphs should open with a sentence that identifies the subject and indicates the logical sequence of material to follow. The paragraphs should be 200 words maximum, or between 100 and 400 words, with a 150 word average; or about 100-150 words; or 150 words or less-- texts didn't agree. Sentences should use basic subject-verb-object order, and be neither too long nor too short, though one book advises that short sentences are "easier to write and easier to understand than long ones." 13 Then, as now, students were instructed to avoid overworked expressions, to edit garbage, to respect mechanical correctness: even punctuation was considered--as one writer puts it--"evidence of accurate

thinking and exact knowledge." ¹⁴

But these similarities are deceptive if they invite us to think that traits of technical style have been handed down from generation to generation, unchanged. One of the early books uses a word, for instance, that rarely appears in descriptions of technical writing today: the word is "interesting." ¹⁵ Another advocates a quality we don't even consider: "beauty." "Everything else being equal"--the student is told--"the discourse is best which achieves its end most beautifully." Part of the beauty may have been drawn from figurative language which, when it did not detract from good sense or good taste, was thought to be very forceful, by demanding "that the reader's imagination supply at least half the thought." ¹⁶ Part of the beauty may have come from imitation of literary Classics, models for the writer, certainly not for their "technical language" but for their use of appropriate words. The Classics, as a result, could add to a writer's "store of words" so that he might "have a richer mental life.... [might] better understand and appreciate writers who do have many words, and... [might] never be at a loss for the right word when he wants it." ¹⁷

These early generalizations about technical writing style--beauty notwithstanding--are narrow in ways we can still see. Because the texts focus on one discipline--engineering--they don't have to consider that other technical disciplines may have essentially different styles. And that limit is their choice. But they also fail to consider that even one discipline--engineering--may have different styles for different audiences and occasions.

3. Style and Audience

Both early and contemporary technical writing books agree--in theory--

to the relationship of audience and style. We're told that the style should be influenced by the reader's interest and ability to understand; completeness depends on the training of the intended reader; diction is different for different audiences, so are sentence and paragraph lengths. In spite of general agreement on the role of the audience in shaping the style, neither the early books nor our own discuss style as the result of options available to the writer, options chosen with the reader in mind. At best, usually in the sentence sections of our current books, we have a brief nod to the reader. Thus, Technical Writing: Principles and Forms urges the use of different sentence patterns not only for emphasis but for the reader's ease: sentences should be neither too short nor too long, for "a series of short sentences may bore the reader. Nonstop sentences may lose him." ¹⁸ And The Technician as Writer explains that different sentence patterns may have different effects on the reader: "The series of short, simple sentences," it says, "makes the ideas seem simple or childish, although they are neither....This has the effect of writing down to the reader, who feels that the writer considers him or her simple-minded. It can also have the reverse effect, making the reader think the writer is simple-minded or has talked with too many computers." ¹⁹ The reader referred to, in both of these books, however, is unidentified--the General Reader often brought in to justify a generalization--not the specific audience who counts when anyone writes, not what Graves calls the "reader over my shoulder."

Treatment of audience in the early texts seems just as limited as in our own. Two of the books identify a single reader of technical

writing, who is defined either as an "honored senior" in the writer's own profession ²⁰ or as a smart Ed Whynn: an "intelligent individual who knows something about the subject but who is approaching it with only a moderate amount of attention and who is easily confused until he catches the thread of the argument." ²¹ The general tendency--then as now--is to agree--in theory--that the technical writer has to be prepared to write for different audiences. In the early texts, audiences are identified in one of two ways: First, in the manner of Houp and Pearsall, we have a classification of readers based on their expertise: the general reader and the specialist; the lay, semi-technical, and technical readers; engineers in the same branch, engineers in other branches, non-technical readers. The second, less common, treatment of audience can be associated with the system currently being used by Bruner, Mathes, and Stevenson in which readers are classified on the basis of what they will do with the information they receive. Here we find the executives, the stockholders, or the specialists.

Although most books identify possibilities of several audiences, however, both early and contemporary texts give the student writers little help in analyzing the audiences. One early book advises them to write in a manner suitable to the reader's mentality and education, but doesn't explain how to determine these levels. ²² As a heuristic, another offers a series of questions: what are the reader's education, special training, expertise? how much information does he have on this subject? what information does he want? has he indicated any prejudices? has he shown any preferences for reports in a particular style or form? ²³ A third, sounding awfully like a contemporary business writing book, advises the engineer to adopt a 'you' attitude: "With

the 'you' attitude the engineer imagines how he would regard the engineering project if he had the non-technical man's training and interests; and he interprets or 'steps-down' his technical ideas so that they will be clear and accurate." ²⁴ Along with drawing on his imagination to do this, the engineer is advised to research the client by reading catalogues and publicity put out by the company, and by studying ads and feature write-ups.

This early advice on audience analysis echoes the advice we're already familiar with: the series of generalizations found in Reporting Technical Information, which are intended to help students understand the process of audience analysis could fit right in with these fifty-year old strategies. But how much help in audience analysis comes with the statement that experts are concerned with how things work and executives are not? The Technician as Writer has the only new word on the audience and that word isn't completely new. As you remember, it identifies a three-stage paradigm in audience analysis: the reader first has to create a chart to locate potential readers; the chart is based on research of an organization, on imagination for those students who do not have direct access to an organization--they fictionalize--or, most likely, on some combination of the two. Then, the student characterizes the jobs and educational backgrounds of the potential readers; and finally she classifies the readers according to what they will do with the information coming in the report. Like the methods of audience analysis advocated earlier in the century, this one requires a blend of research and imagination.

Conclusions

In 1911, in his book The Theory and Practice of Technical Writing,

Samuel Earle identified three kinds of technical writing texts:

1. The text using models of technical writing: "Specimens.... which show the finished product but do not indicate to the bewildered writer how he may produce the best results;"
2. The handbook: "dissertations on correct English together with notes for the guidance of authors in the submission of manuscripts to publishers, which only add to the large number of valuable books already written on these subjects;"
3. The composition rhetoric: "treatises on technical writing addressed with a certain condescension to engineers, but in reality based on a study of literary exposition."

He went on to complain that "not one of these would seem to get down to underlying principles or to deal with technical writing in a way which is general, yet definite enough to serve as a practical guide for the engineer." ²⁵ These days, as we learn more about how writers write, we recognize the difficulty of Earle's request--a general yet definite practical guide. I'd like to add a few difficult requests of my own.

1. We still ignore invention in our technical writing books, ²⁶ invoking it only in our treatment of research tools, implying that the technical writer knows exactly what she is going to produce on paper before she lifts a pencil. ²⁷ Implicitly or explicitly, we share the same advice of a 1920 text which quite simply says--"Do not write until you have something to say. Think first; then write...." This text goes on to say that "A good writer will form the habit of regulating the speed of his thinking so that it keeps step with the order of his writing. The ability to synchronize the movements of the brain and of the hand is acquired by experience...." ²⁸ Research, and our own writing, however, tell us that ALL is not planned out before a

writer grabs that pencil. According to Flower and Hayes, the "typography keeps changing. The writer doesn't start with a well-formed thesis that she can develop. Instead, she must juggle her ideas around, trying to decide just how they are related." ²⁹ How many juggling techniques do our texts introduce today? Another composition researcher, Ann Berthoff, reminds us that "meanings don't come out of air; we make them out of a chaos of images, half-truths, remembrances, syntactic fragments, from the mysterious and unformed." ³⁰ Since even the most methodical technical writer must deal with that chaos, shouldn't our texts show her how?

2. A second request--we work more with audience. We still have a very mechanical approach to audience analysis, oversimplifying the writer's activities in defining the audience. In another context, Father Ong has reminded us not only that successful writers fictionalize their audiences but that "we [have to] think more about the problems that the need to fictionalize audiences creates for writers." ³¹ Experienced authors, he tells us, learn to fictionalize by reading. How do our students learn? How do our texts show them?

We still compartmentalize style and audience, implying that considerations of audience take place only before the text is produced--not as it is produced. Yet Flower and Hayes tell us that a sense of audience is a "constant constraint" in the writing process--not something preliminary to writing. And critics like Iser and Rosenblatt, who study how people read other discourse,

show the effect of that constraint on the reader: throughout the reading process, the text shapes the reader.³² Knowing this research, we--and our books--should encourage our students to consider the audience throughout the writing process.

3. Finally, even while we recognize different audiences for the technical writer, our books assume only one appropriate writing style. Researchers, again, suggest that style is more than decoration applied to content, even more than a way of shaping meaning. It is a way of belonging to a community, and each community has its own style, not simply its own diction and format but--as Carolyn Miller says--its own values, emphases, ways of seeing and thinking.³³ And within large communities are smaller units, each with its own perspectives. Do our current texts help students learn how to belong to these communities? Do they teach them how to discover styles and to adjust styles to audiences?

If we work in these three areas, our books may still not be general or practical enough for Samuel Earle, our books may not be more beautiful, or forceful, or interesting, but they will be more accurate, and even--I hope--more helpful. It's fine to respect the advice of the early texts but perhaps now we need to pay more attention to the research being done around us. Perhaps the old order should change.

Mary Rosner

The University of Louisville

Endnotes

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2. James Kinneavy, A Theory of Discourse (New York: Norton, 1971), 170.
3. Thomas R. Agg and Walter L. Foster, The Preparation of Engineering Reports (New York: McGraw Hill, 1935); Ray Palmer Baker, The Preparation of Reports (New York: The Ronald Press Co., 1924); Frederick Beckman, et al., Technical Writing of Farm and Home (Ames, Iowa: Journalism Publishing Co., 1927); Samuel Chandler Earle, The Theory and Practice of Technical Writing (New York: Macmillan, 1911); Harwood Frost, Good Engineering Literature: What to Read and How to Write with Suggestive Information on Allied Topics (Chicago: Chicago Bk. Co., 1911); Carl Gaum and Harold Graves, Report Writing (New York: Prentice Hall, 1929); Sada A. Harbarger, English for Engineers (New York: McGraw Hill, 1923); Sada Harbarger, English for Students in Applied Sciences (New York: McGraw-Hill, 1938); Almonte C. Howell, A Handbook of English in Engineering Usage (New York: John Wiley, 1930); Philip McDonald, English and Science (New York: Van Nostrand Co., 1929); Carl Naether and George F. Richardson, A Course in English for Engineers. 2 vols. (Boston: Ginn & Co., 1930); Clyde W. Park, English Applied in Technical Writing (New York: F.S. Crofts & Co., 1929); Harlow Richardson, et al., Practical Forms in Exposition: A Manual Designed to Assist Technical Students with Papers, Letters, Reports, and Reading (New York: Macmillan, 1934); T.A. Rickard, Technical Writing (New York: John Wiley, 1920); John Hubert Scott, Engineering English (New York: John Wiley, 1928); Victor Solberg, Expository Descriptions: A Textbook for Courses in Technical Writing (New York: The Ronald Press, 1929); Homer Andrew Watt, The Composition of Technical Papers (New York: McGraw Hill, 1917).
4. Kenneth Houp and Thomas Pearsall, Reporting Technical Information (Encino, CA: Glencoe, 1980); Deborah Andrews and Margaret Blickle, Technical Writing: Principles and Forms (New York: Macmillan, 1978); Ingrid Bruner, J.C. Mathes, Dwight Stevenson, The Technician as Writer (Indianapolis: Bobbs-Merrill, 1980).
5. Andrews and Blickle, vii.
6. Richardson, et al., v.
7. Harbarger, English for Engineers, vii.
8. Park, vii.
9. Harbarger, English for Engineers, 255-56.

10. Frost, 1.
11. Rickard, 174.
12. Naether and Richardson, 24.
13. Rickard, 164.
14. Harbarger, English for Students in Applied Sciences, 113.
15. Agg and Foster, 86.
16. Naether and Richardson, 33-4, 61.
17. Naether and Richardson, 49.
18. Andrews and Blickle, 172.
19. Bruner, Mathes, and Stevenson, 134.
20. Rickard, 15.
21. McDonald, 14.
22. Agg and Foster, 85.
23. Gaum and Graves, 91-2.
24. Harbarger, English for Engineers, 49.
25. Earle, vi.
26. Dennis Hall remarked more than five years ago on the absence of invention in the technical writing texts. See "The Role of Invention in Technical Writing, TWT 4 (Fall 1976), 13-24.
27. One of the early authors even takes into account the tools of writing when he advises his students: "My own practice is to write with a soft pencil on paper that is not too smooth. The dipping of a pen into the ink introduces an artificial interruption--annoying if it come in the middle of sentences. Besides, the point of the pen being too hard, the fingers soon tire" (Rickard, 166).
28. Rickard, 166.
29. Linda Flower and John Hayes, "The Dynamics of Composing: Making Plans and Juggling Constraints," in Cognitive Processes in Writing, ed. Gregg and Steinber (Hillsdale, NJ: Erlbaum Associates, 1980), 35.
30. Ann Berthoff, The Making of Meaning (Montclair, NJ: Bounton/Cook, 1981), 69-70.

31. Walter Ong, "The Writer's Audience Is Always a Fiction," PMLA 90 (January 1975), 16.

32. See Wolfgang Iser, The Implied Reader (Baltimore: Johns Hopkins, 1974) and The Act of Reading (Johns Hopkins, 1978); Louise Rosenblatt, The Reader, the Text, the Poem (Carbondale, Ill.: Southern Illinois University Press, 1978).

33. Carolyn Miller, "A Humanistic Rationale for Technical Writing," CE 40 (Feb., 1979), 610-618.